

WRITTEN REPLY

Submitted to: The Examiners of the Patent Office

1. Indication for International Application:

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5. Contents of Reply:

(1) The Examiner has issued the following finding
regarding the invention as set forth in the Claims of the
present application citing JP 11-207963A (hereinafter
referred to as "Document 1") and JP 2000-263875A

(hereinafter referred to as "Document 2") in the Written Opinion dated (dispatched) June 29, 2004.

In particular, the invention as set forth in claims 1, 6, 7 of the present application is described in [0017] - [0055] of Document 1 and therefore lacks in novelty and inventive step.

The invention as set forth in claims 2, 3, 5, 8 of the present application lacks in inventive step in view of Document 1 ([0017] - [0055]). It is easy to a person skilled in the art to set the discharging deflection angle merely to a plurality of angles in the invention described in Document 1. Further, since the invention described in Document 1 uses a plurality of output resolutions, means for determining the output resolution is required without fail. And, it is easy to a person skilled in the art to give an instruction of an output resolution in input data or determine an output resolution in advance.

The invention as set forth in claim 4 of the present application lacks in inventive step in view of Document 1 and Document 2. It is easy to a person skilled in the art to apply the matter of outputting an image with a resolution equal to twice an image input resolution from a printer engine, as taught in Document 2,

to the invention of Document 1.

However, the Applicant cannot accept the finding at all and sets forth the reason below. It is to be noted that the Applicant has amended the specification and the Claims in order to further clarify the characteristics of the invention of the present application by way of a written amendment submitted on the same date as the present written reply.

(2) The subject matter of the invention of the present application is such as stated in the Claims and resides in:

"A printing apparatus comprising a head including a plurality of ink discharging portions provided in a juxtaposed relationship thereon and capable of deflecting a discharging direction of an ink droplet to be discharged from each of said ink discharging portions to a plurality of directions in the juxtaposition direction of said ink discharging portions and further capable of setting the discharging deflection angle which is a maximum deflection amount of an ink droplet to be discharged from said ink discharging portions to a plurality of angles, wherein:

a printing resolution is determined in response to inputted print data from between or among a plurality of

printing resolutions which are determined from a juxtaposition distance of said ink discharging portions, the discharging deflection angle of an ink droplet to be discharged from said ink discharging portions and a plurality of directions in which an ink droplet can be discharged from said ink discharging portions; and

those of said ink discharging portions from which an ink droplet is to be discharged and the discharging deflection angle of an ink droplet to be discharged from said ink discharging portions are selected based on the determined printing resolution and the discharging direction of one or two or more ink droplets from the selected ink discharging portions on one line is determined; and

a discharge execution signal with which the discharging direction of an ink droplet can be specified is transmitted to each of the selected ink discharging portions to execute printing with the printing resolution determined in response to the inputted print data from between or among the plurality of printing resolutions."

(3) Document 1 describes an invention which controls the ink discharging direction to print with a plurality of resolutions. Further, since the invention described in Document 1 involves a plurality of output

resolutions used for printing, it is considered that the invention includes means for determining an output resolution without fail. It is considered that the invention of the present application is common to the invention described in Document 1 in that a plurality of resolutions can be used to print by controlling the ink discharging direction and that an output resolution is determined from between or amount a plurality of available output resolutions.

However, the invention described in Document 1 is apparently different from the invention of the present application in that the discharging deflection angle (maximum deflection amount) is fixed. While the Examiner points out that "It is easy to a person skilled in the art to set the discharging deflection angle merely to a plurality of angles", the invention of the present application not only sets the discharging deflection angle merely to a plurality of angles but also makes the discharging deflection angle (maximum deflection amount) variable in order to further increase the width of the resolution, and the invention of the present application and the invention disclosed in Document 1 are different from each other in constitution. In particular, according to the invention of the present application, not only it

is possible to set the discharging deflection angle (maximum deflection amount) to α , for example, as shown in FIG. 7, but also it is possible to set the deflection angle to β ($\neq \alpha$) as shown in FIG. 10 (page 34, lines 3-9 of the specification of the present application). More particularly, where the discharging deflection angle (maximum deflection amount) is set to the fixed value of α as shown in FIGS. 7 to 9, printing can be performed with a plurality of resolutions (for example, 600 dpi in FIG. 7, 4,800 dpi in FIG. 8, and 960 dpi in FIG. 9) by changing the discharging direction of an ink droplet from an ink discharging portion. In addition, according to the invention of the present application, by varying the discharging deflection angle (maximum deflection amount), printing can be performed with a further different resolution (720 dpi) as shown in FIG. 10 (by setting the discharging deflection angle to β ($\neq \alpha$)) (refer to page 34, line 13 to page 40, line 11 of the specification of the present application). In this manner, the printing apparatus of the invention of the present application makes it possible to perform printing with many different resolutions.

Such a constitution of the invention of the present application as described above is not described in

Document 1 and the effect of the invention of the present application is not suggested in Document 1. Therefore, the invention of the present application could not have been made easily from the invention described in Document 1.

Further, according to the invention of the present application, those of the ink discharging portions from which an ink droplet is to be discharged and the discharging deflection angle of an ink droplet to be discharged from the ink discharging portions are selected based on the determined printing resolution and the discharging direction of one or two or more ink droplets from the selected ink discharging portions on one line is determined. In other words, according to the invention of the present application, since a resolution is determined from three factors of selection of ink discharging portions, selection of a discharging deflection angle and determination of the discharging direction of one or two or more ink droplets from the ink discharging portions on one line, printing can be performed with a greater number of resolutions.

In contrast, according to the invention described in Document 1, since such a greater number of resolutions as in the invention of the present application are not

available, the invention described in Document 1 cannot exhibit the effect of the invention of the present application.

As described above, since Document 1 does not include any description relating to the invention of the present application nor suggests the effect of the invention of the present application, the invention of the present application could not have been made easily based on the invention described in Document 1 but has the inventive step.

Further, since the difference between the invention of the present application and the invention described in Document 1 is clarified and it can be decided that the invention of the prevent application could not have been made easily from Document 1, also the difference between the invention described in Document 2 and the invention of the present application is clear, and it is believed that Document 2 is not a prior art which denies the inventive step of the invention of the present application.

End.